

WHAT IS CLAIMED IS:

1. An elastically stretchable composite sheet comprising a first web having x- and y-directions orthogonal to each other and being elastically stretchable at least in said y-direction and a second web made of thermoplastic synthetic resin fibers and being inelastically stretchable in said y-direction, said first and second webs being bonded to each other in bonding zones intermittently arranged in said y-direction wherein a length of said thermoplastic synthetic resin fiber bonded to said first web measured between each pair of the adjacent bonding zones is longer than a straight distance defined between said pair of the adjacent bonding zones, wherein:

said fiber has in its cross-section cut in a direction
15 orthogonal to its longitudinal direction a width w and a height
h orthogonal to said width w dimensioned so that a ratio of h/w
is less than 0.5.

2. The composite sheet according to Claim 1, wherein said
20 fiber presents a substantially rectangular cross-section of
which the width is defined as said width w and the height is
defined as said height h .

Sub
A1

- 19 -

3. The composite sheet according to Claim 1, wherein said fiber presents a substantially triangular cross-section of which the base is defined as said width w and the height is defined as said height h .

4. The composite sheet according to Claim 1, wherein said fiber is obtained by branching or dividing the conjugating fiber comprising at least two types of thermoplastic synthetic resin to separate fiber comprising each type of resin.

5. A process for making an elastically stretchable composite sheet comprising a first web having x- and y-directions orthogonal to each other and being elastically stretchable at least in said y-direction and a second web made of thermoplastic synthetic resin fibers and being inelastically stretchable in said y-direction, said first and second webs being bonded to each other in bonding zones intermittently arranged in said y-direction wherein a length of said thermoplastic synthetic resin fiber bonded to said first web measured between each pair of the adjacent bonding zones is longer than a straight distance defined between said pair of the adjacent bonding zones, said process comprising the steps of:

a. continuously feeding said first web in said y-

- 20 -

direction;

b. obtaining a plurality of conjugated fibers each comprising at least two types of thermoplastic synthetic resin and being dividable into said at least two types of resin by melt spinning and then continuously feeding an assembly of said conjugated fibers in the form of web in said y-direction for said second web;

c. placing said first web and said web of conjugated fibers for said second web upon each other and bonding these two webs together in bonding zones arranged intermittently in said y-direction to form a composite web;

d. stretching said composite web in said y-direction and obtaining said second web from said web of conjugated fibers; and

e. contracting said stretched composite web to obtain said composite sheet.

6. The process according to Claim 5, further comprising a step of continuously feeding said composite web in stretched or contracted state and subjecting said conjugated fibers to high pressure columnar water streams discharged from a plurality of nozzles to divide each of said conjugated fibers.

7. The process according to Claim 5, wherein each of the divided or branched fibers obtained in the step of stretching said composite web or in the step of subjecting said conjugated fibers to the high pressure columnar water streams has a cross-section cut in a direction orthogonal to the longitudinal direction of said conjugated fiber, said cross-section being defined by a width w and a height h , and wherein a ratio h/w , i.e., said height h to said width w is less than 0.5.